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Silo Fluidizer User Guide

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Applications:

The Silo Fluidizer is designed for assisting the flow of dry powdered products in flat or conical silos and hoppers. For standard units, the installation should be PH neutral and temperature should be less than 350° F (170°C). The Fluidizers work best when the product moisture content is less than 12-15%. Large particles such as gravel, feed, grain, and pellets do not aerate. The Fluidizers also do not work well in applications where the particles are interlocking such as wood shavings, shredded plastic or fiberglass. Return the Installation Questionaire (See Appendix 1) for our recommendations for Fluidizer use in your specific application.

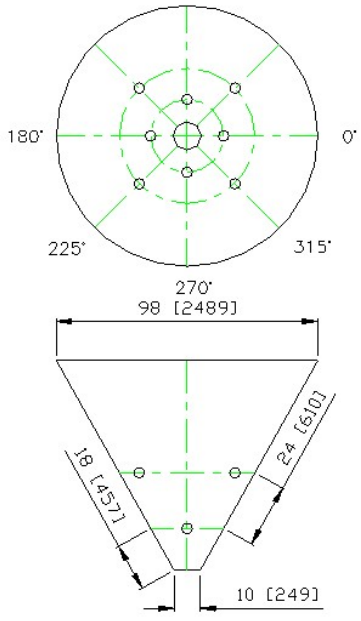
Material Options:

The Solimar Silo Fluidizer is available in various stem sizes and materials as shown on the Fluidizer Data Sheet (See Appendix 2). The standard models are listed, but special disk materials for high temperature and chemical reactivity are listed on the Fluidizer Disk Specification Sheet (See Appendix 3). Non-stock custom stems can be manufactured to customer specifications. Contact Solimar for a quote.

Placement Guidelines:

Aerate the bottom 1/3 – 1/2 of the outlet cone. Slope of the cone should be at least 45° for maximum effectiveness. On curved surfaces the mounting diameter must be greater than 16” to ensure proper sealing (a modification can be made for tighter curvature). Locate the first row of Fluidizers 12”-18” from the discharge opening. There should be enough units to space every 20”-24” on this row. Subsequent rows should alternate to achieve complete coverage. Spacing on higher rows can be increased.

Example:



Contact Solimar if you need assistance with Fluidizer placement in your bin or hopper.

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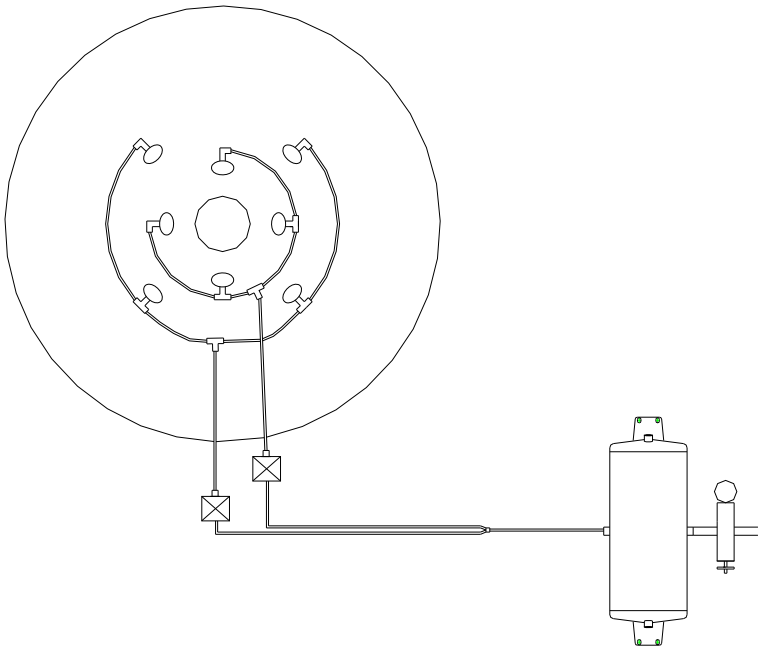
Installation Instructions:

Standard installation for the Silo Fluidizer requires a through hole drilled or cut in the hopper wall. There is no welding or threaded couplings required (See Appendix 4). The use of the EZ-In external mounting kit allows for installation and maintenance of the Silo Fluidizer from outside the silo (See Appendix 5). This is especially useful when there are confined space constraints or limited access to the interior of process hoppers.

Air Distribution:

Only operate the Fluidizers while discharging material from the silo to avoid creating air channels or voids. To ensure balanced air distribution it is recommended to use an air manifold or operate no more than four Fluidizers together as shown:



Air Consumption:

Pulsed air flow saves air and decreases the chance of air pockets and channeling to occur. Every product and application is unique, but typical pulse sequencing is 2-3 seconds on with a 7-10 second off time. Air capacity for the different models is shown on the Fluidizer Data Sheet (See Appendix 2). Air consumption for your application can be calculated by the following:

CFM **x** # of Fluidizers **x** total on time (sec)/minute **x** 1 min/60 sec. **=** Total CFM Required

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Suggested Maintenance:

Maintenance on Solimar Silo Fluidizers is minimal. However, periodic visual inspections should be made to check for wear. The following inspection should be performed once a year:

1) Check for wear on the Fluidizer disk. Disk should seal tightly against the hopper wall. Check for uneven wear on the disk. If it is no longer round along the outside edge, this is a sign of uneven air flow and the disk should be replaced.

2) Check to make sure no product has "caked" or hardened beneath the disk. This can be cleaned by removing the disk and stem assembly. Also check to make sure the o-ring on the stem has not been crushed or flattened.

3) When reinstalling the Silo Fluidizer, be sure to tighten the nut to the recommended 25 ft. lbs. [35 N m] of torque.

Any parts that need replacing can be ordered using the numbers shown on the Spare Parts List (See Appendix 6).

Limited Warranty:

Solimar Pneumatics warrants its Products as follows:

1. Limited Warranty – Solimar warrants that the Products will be free from defects in material and workmanship for a period of one (1) year from the date of purchase. The Buyer must notify Solimar in writing of any claimed defect within 10 days after discovery thereof and demonstrate to Solimar's satisfaction that said defects are covered by this Limited Warranty. If the defects are of such type and nature as to be covered by this warranty, Solimar shall, at is own expense, furnish replacement Products or replacement parts for the defective product. Installation of the replacement Products or parts shall be at the Buyer's expense.

2. Other Limits – The foregoing is in lieu of all other warranties, express or implied, including by not limited to the implied warranties of merchantability and fitness for a particular purpose.
   Solimar does not warrant against damages of defects arising from the improper or abnormal use of, handling of, or improper installation of the Products. The warranty also does not apply to Products upon which repairs have been effected or attempted by persons other than pursuant to written authorization from Solimar.

3. Other Statements – This warranty is exclusive. The sole and exclusive obligation of Solimar shall be to repair or replace the defective Products in the manner and for the period provided above. Under no circumstances shall Solimar be liable for incidental, special, or consequential damages.
   Solimar's employees or representatives' oral or other written statements do not constitute warranties and shall not be relied upon by the Buyer and are not part of the contract for sale or this limited warranty.

   This Limited Warranty states the entire obligation of Solimar with respect to the Products. If any part of this Limited Warranty is determined to be void or illegal, the remainder shall remain in full force and effect.

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Appendix

1. Installation Questionnaire

2. Silo Fluidizer Data Sheet

3. Fluidizer Disk Specification Sheet

4. Installation Instructions

5. EZ-In Installation Instructions

   5.1 Oval Cutout Template
   5.2 Rectangle Cutout Template
   5.3 Round Cutout Template

6. Spare Parts

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Solimar Silo Fluidizer
Installation Questionnaire

Company Name_____

Your Name_____

Address_____

_____

_____

Telephone Number_____ Fax Number_____

Description of Material in Bin

Name of Material_____

Moisture / Fat Content_____% Min. _____% Max.

Hydroscopic (Yes/No)

Range of Particle Size

Minimum_____ or _____Mesh

Maximum_____ or _____Mesh

Percent under 50 Mesh _____Under 200 Mesh_____

Material Temperature _____(˚F / ˚C)

Settled Bulk Density_____(lb/ft^3) / ($Tons/m^3$)

Special Characteristics_____

Description of Bin

Bin Wall Material_____

Shape of Hopper Conical/ Square / Rectangle / Other (please describe)_____

Size (diameter / square) of Hopper_____

Slope of Bin Wall _____From Horizontal

Bin is Discharged through airlock / Screw / Valve / Other (please describe)_____

General Comments_____

_____

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Silo Fluidizer – Technical Data

Series 4300: Capacity 10 – 20 CFM @ 20 – 30 PSI (15 – 30m³/h @ 1-2 bar)

Model	Disk	Stem	A	B	C	D	E	Airline Options
4300	Blue	Mild Steel	1/4" NPT	1/2" NPT	7/8" (22mm)	1 3/16" (30mm)	3" (76mm)	3/8"– 1/2" (10 - 13mm) Tubing
4301	White							
4302	Blue	Aluminum						
4303	White							
4304	Blue	Stainless						
4305	White							

Series 4400: Capacity 25 – 40 CFM @ 10 – 20 PSI (40 – 70m³/h @ 0.7-1.5 bar)

Model	Disk	Stem	A	B	C	D	E	Airline Options
4400	Blue	Mild Steel	1/2" NPT or BSTPT	3/4" NPT	1 1/16" (27mm)	1 1/4" (32mm)	3 1/16" (78mm)	1/2"– 3/4" (13 - 19mm) Tubing or Hose
4401	White							
4402	Blue	Aluminum						
4403	White							
4404	Blue	Stainless						
4405	White							

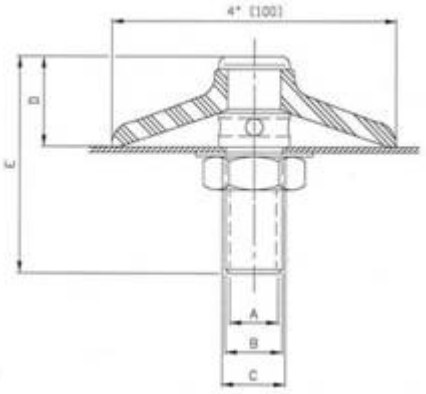
Series 4500: Capacity 30 – 50 CFM @ 5 – 10 PSI (50 – 85m³/h @ 0.3-0.7 bar)

Model	Disk	Stem	A	B	C	D	E	Airline Options
4500	Blue	Mild Steel	3/4" NPT or BSTPT	1" NPT	1 3/8" (35mm)	1 1/4" (32mm)	3 1/4" (83mm)	3/4"– 1" (19 - 25mm) Hose
4501	White							
4502	Blue	Aluminum						
4503	White							
4504	Blue	Stainless						
4505	White							

Versatility. Numerous combinations of stems, fittings and airlines to fit your application. Solimar Fluidizers can be used with high pressure / low volume compressed air or with low pressure / high volume blower air.

Engineering Assistance. Fax or e-mail a sketch or drawing of your bin, along with a description of your bulk material and we will provide a recommended number and placement of fluidizers for your application the next day.

Easy installation. Fits both conical and square bins, EZ-In (Easy-In) kits also available for installation without getting inside the bin.



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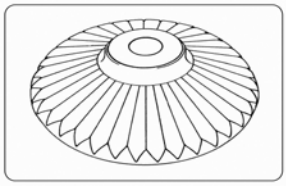
Fluidizer Disk Specification/Usage

Part No.	Compound	Color	Temperature Range	Food Grade Approved	Usage Certification
4124	Silicone	Blue	(-60 to 350)°F (-50 to 175)°C	YES	FDA 177.2600
4134	Silicone	Natural	(-60 to 350)°F (-50 to 175)°C	YES	FDA 177.2600 USDA 3A*
4154	EPDM	Black	(-20 to 250)°F (-30 to 120)°C	YES	FDA 177.2600
4164	EPDM	White	(-20 to 250)°F (-30 to 120)°C	YES	FDA 177.2600
4124HT	Silicone	Orange	(-50 to 450)°F (-45 to 230)°C	NO	

*** USDA 3A compliance on disk only.**



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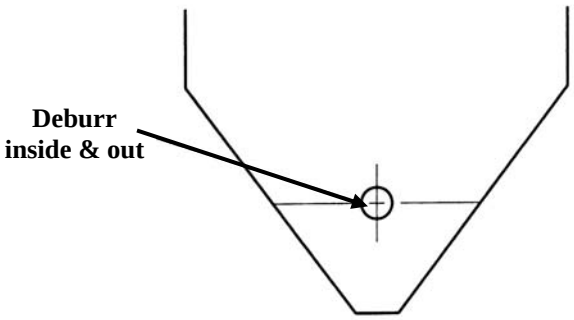
INSTALLATION INSTRUCTIONS
SOLIMAR SILO FLUIDIZERS

1 - Drill appropriate size hole (see table) in silo wall.

Fluidizer	Hole Size - Diameter
43XX	7/8" (22mm)
44XX	1 -1/16" (27mm)
45XX	1 - 3/8" (35mm)
48XX	1/2" (13mm)

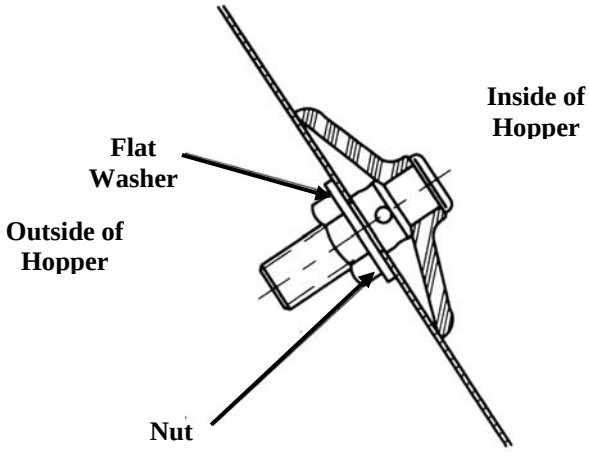
2 - Deburr inside and outside of hole. If not deburred, damage to O-ring will occur. Make sure the area where the Fluidizer shall be mounted is free of debris or defects (dents, caked material, weld seams, etc).



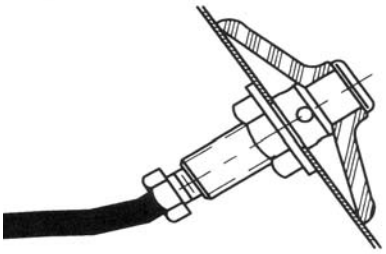
3 - From the inside of the silo, have one person insert disk and stem assembly into the hole.

4 - From the outside of the silo, have a second person put the flat washer and nut onto the stem.

5 - Torque nut to approximately 25 ft. lbs (35 N m).



6 - Attach air supply line to the stem.



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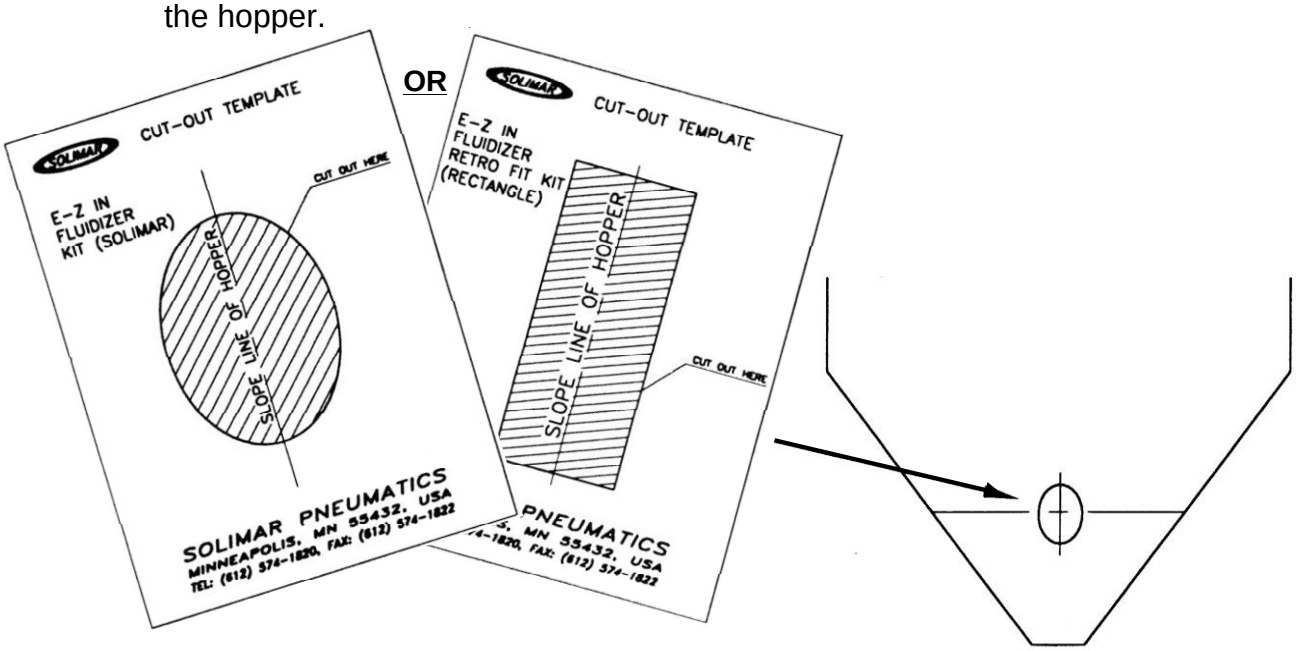
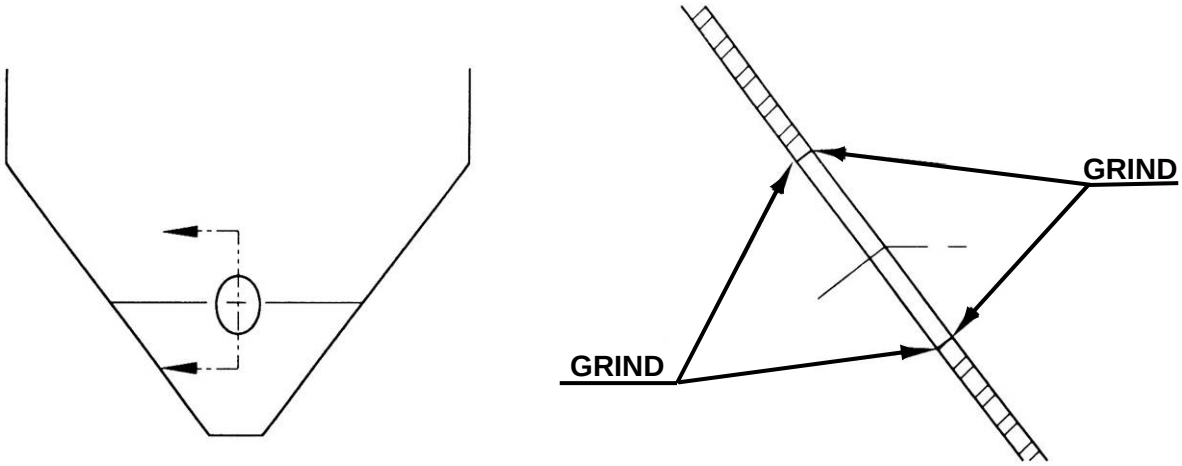
INSTALLATION INSTRUCTIONS – EZ-IN FLUIDIZER

1. Using one of the cut out templates provided by Solimar, trace the pattern on the hopper.



2. Flame cut traced pattern with cutting torch or other means.

3. Grind all surfaces of the cut opening – **the inside of the hopper wall must be smooth and free of any burrs or slag.**



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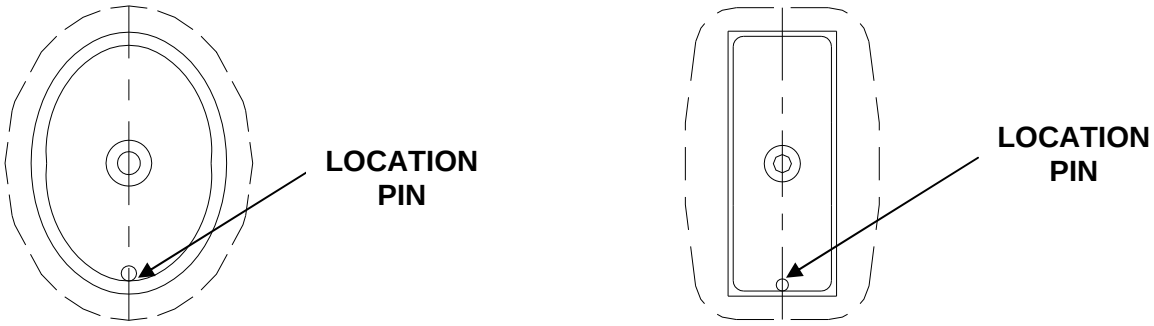
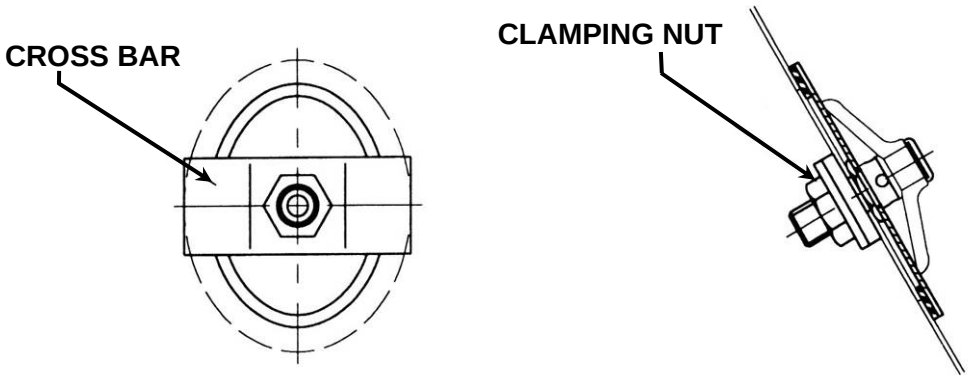
4. Attach the fluidizer assembly to the plate using the washer and mounting nut. Insert Solimar EZ-In plate with fluidizer assembly, making sure the location pin is resting at the <u>bottom of the opening</u>.

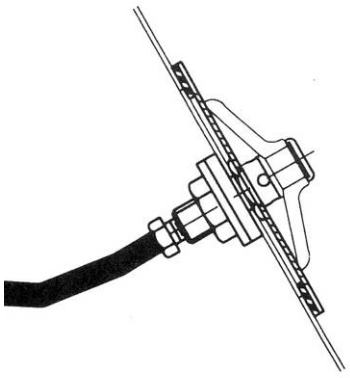


5. On the outside of the hopper, attach cross bar to the fluidizer plate assembly with the clamping nut.



6. Torque clamping nut to 20 ft. lbs (27 N ·m).

7. Attach the air supply line to the fluidizer.



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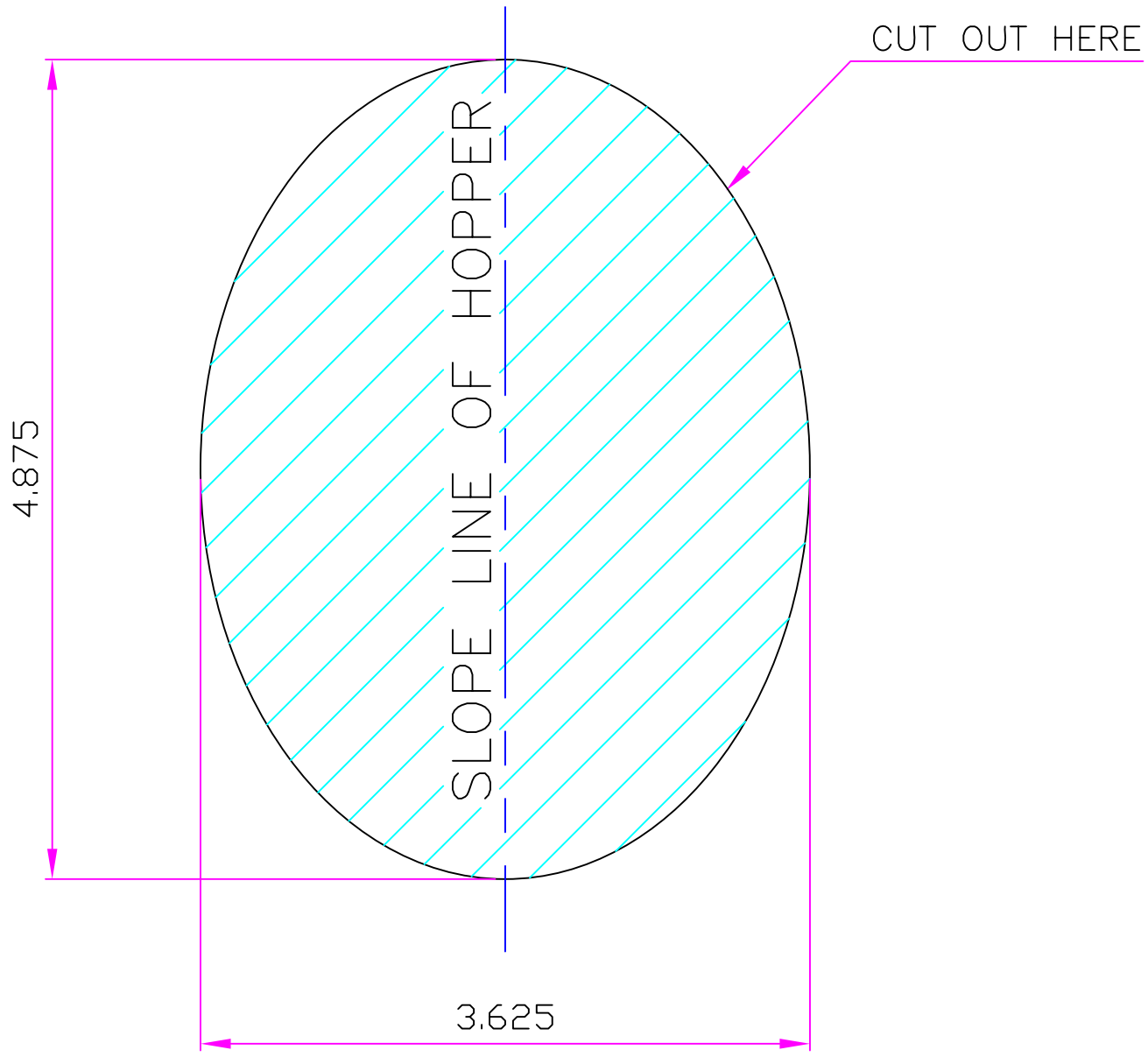
CUT–OUT TEMPLATE

E–Z IN FLUIDIZER KIT (SOLIMAR)



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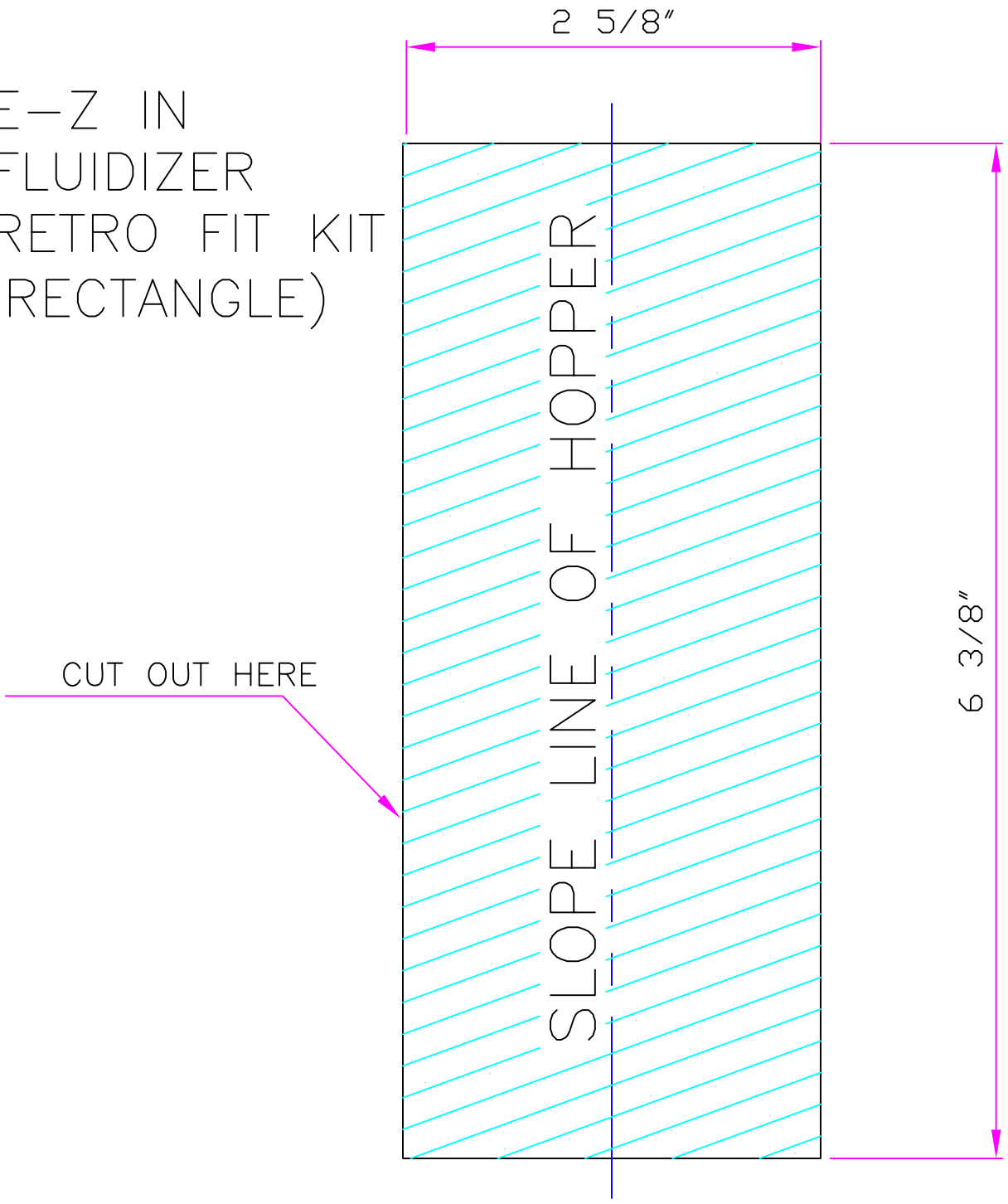
CUT–OUT TEMPLATE

E–Z IN
FLUIDIZER
RETRO FIT KIT
(RECTANGLE)



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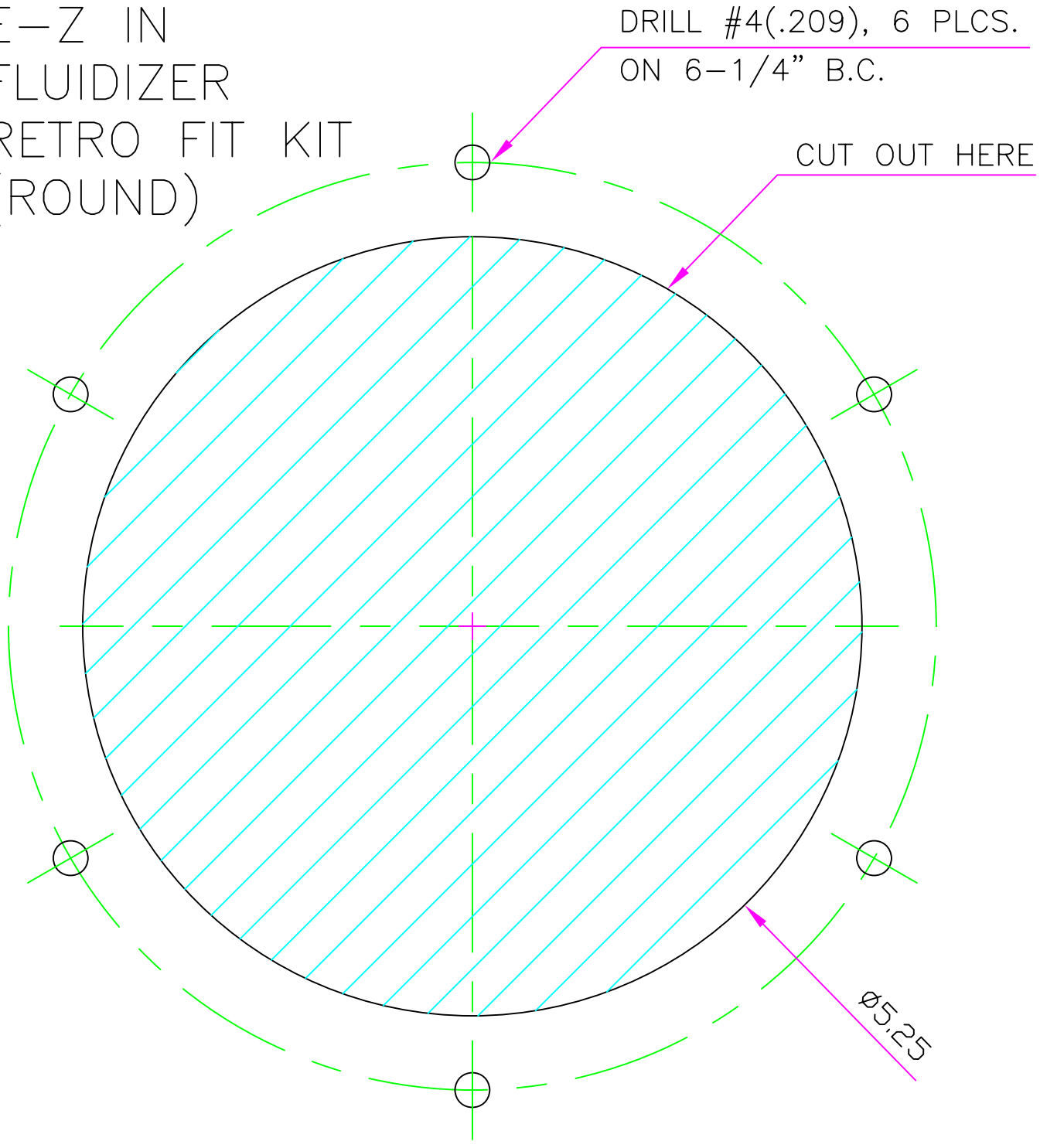
CUT–OUT TEMPLATE

E–Z IN FLUIDIZER RETRO FIT KIT (ROUND)



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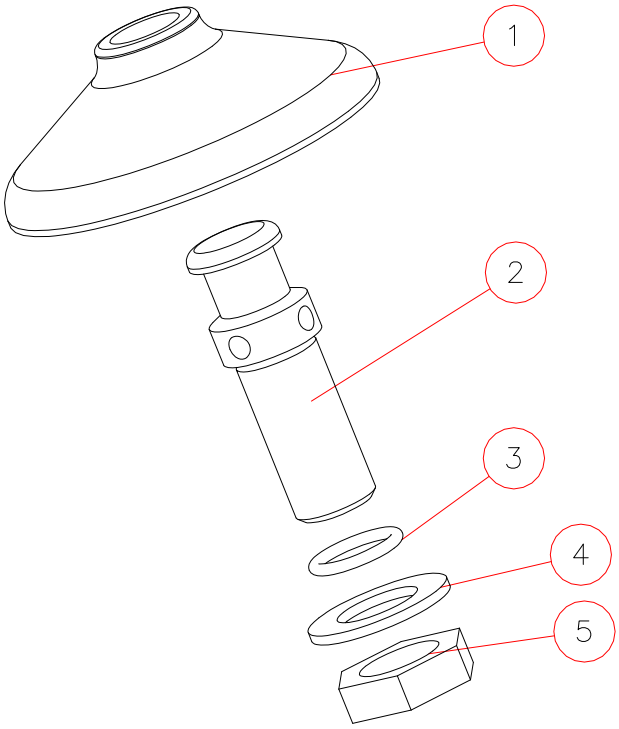
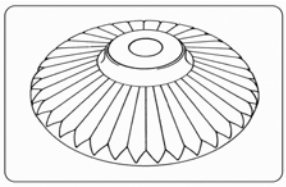
SILO FLUIDIZER SPARE PARTS

Item	Part #	Description
	Fluidizer Disks	
1	4124	Blue Silicone Disk
	4124HT	Orange High Temp. Silicone Disk
	4134	White Silicone Disk
	4154	Black EPDM Disk
	4164	White EPDM Disk
	4300 Series	
2	4310	Carbon Steel Stem
	4311	Aluminum Stem
	4312	Stainless Steel Stem
3	7561	O-Ring
4	4313	Flat Washer, Zinc Plated
	4314	Flat Washer, Stainless Steel
5	4315	1/2” Pipe Nut, Zinc Plated
	4316	1/2” Pipe Nut, Stainless Steel
	4400 Series	
2	4410	Carbon Steel Stem
	4411	Aluminum Stem
	4412	Stainless Steel Stem
3	7755	O-Ring
4	4413	Flat Washer, Zinc Plated
	4414	Flat Washer, Stainless Steel
5	4415	3/4” Pipe Nut, Zinc Plated
	4416	3/4” Pipe Nut, Stainless Steel
	4500 Series	
2	4510	Carbon Steel Stem
	4511	Aluminum Stem
	4512	Stainless Steel Stem
3	7714	O-Ring
4	4513	Flat Washer, Zinc Plated
	4514	Flat Washer, Stainless Steel
5	4515	1” Pipe Nut, Zinc Plated
	4516	1” Pipe Nut, Stainless Steel





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